

CLAIMS

1. A computer system comprising:
  - at least one computer;
  - a storage having a logical volume which can be used by the computer; and
  - a control utility for instructing a change in a logical volume of the storage,
    - wherein said computer has logical volume recognizing means for recognizing a construction change in the logical volume in said storage,
    - 10 said storage has logical volume control means for controlling the construction of the logical volume, and
    - 15 the logical volume control means has a logical volume number map describing logical volume construction information.
2. The computer system according to claim 1, wherein said logical volume number map includes:
  - 20 a logical volume number seen from said computer;
  - a logical volume number in said storage; and
  - 25 logical volume number combining information describing a combining relation between the logical volume number seen from the computer and the inner logical volume number of said storage,
  - according to an instruction from said control utility, said logical volume control means describes a

new combination relation between the logical volume number seen from the computer and the inner logical volume number of the storage into the logical volume number map with respect to an inner logical volume of the storage, of which correspondence with the computer has not been defined, thereby changing the logical volume construction, and

the construction change of the logical volume assigned to said computer is recognized by said logical volume recognizing means.

3. The computer system according to claim 1, wherein the number of blocks indicative of the size of said inner logical volume is described in said logical volume number map, and

when a plurality of inner logical volumes are assigned, a cumulative total of the numbers of blocks of the inner logic volumes including the immediately preceding the inner logic volume is used as the top address of each inner logical volume.

4. The computer system according to claim 2, wherein the number of blocks indicative of the size of said inner logical volume is described in said logical volume number map, and

when a plurality of inner logical volumes are assigned, a cumulative total of the numbers of blocks of the inner logic volumes including immediately

preceding inner logic volume is used as the top address of each inner logical volume.

5. A computer system comprising:

5 at least one computer;

used by said computer; and

10 a control utility for instructing a change in a logical volume construction of said storage,

wherein said computer has logical volume  
15 recognizing means for recognizing a construction change  
of the logical volume in said storage,

20 said storage has logical volume control means  
for controlling the construction of the logical volume,  
and the logical volume control means has a logical  
volume number map and copy means for copying said  
logical volume, and

25 said logical volume control means compares a  
capacity of an undefined inner logical volume area and  
a capacity required by said control utility with each  
other by using data of said logical volume number map  
in accordance with an instruction from said control  
utility, and only in the case where the capacity of the  
undefined inner logic volume area is larger, a new  
inner logical volume is defined in said undefined inner  
logical volume area, data recorded in the area of the  
logical volume number designated by said control  
utility is copied into said undefined inner logical

volume area, and a new inner logical volume number is set in a newly defined inner logical volume area in response to completion of the copying.

5 6. The computer system according to claim 5, wherein in said logical volume number map, when a new inner logical volume number is set in the newly defined inner logical volume area, an area corresponding to the logical volume number designated by said control utility is changed to an inner logical volume whose correspondence with said computer is not defined.

10 7. The computer system according to claim 5, wherein said logical volume control means allows said computer to access said storage on both an area corresponding to a logical volume number designated by said control utility and an inner logical volume area newly defined while the copying operation by said copy means is performed.

20 8. A computer system comprising:  
at least one computer;  
a storage having a logical volume which can be used by said computer; and  
25 a control utility for instructing a change in a logical volume construction of said storage,  
wherein said computer has logical volume recognizing means for recognizing a construction change

of the logical volume in said storage,

    said storage has logical volume control means for controlling the construction of the logical volume, and the logical volume control means has a logical volume number map in which construction information of logical volumes is described and copy means for copying said logical volumes,

    according to an instruction from said control utility, said logical volume control means compares a capacity of an undefined inner logical volume area and a capacity required by said control utility with each other by using data of said logical volume number map,

    in the case where the capacity of the undefined inner logic volume area is larger, a new inner logical volume is defined in said undefined inner logical volume area and data recorded in the area of the logical volume number designated by said control utility is copied into said undefined inner logical volume area, and a new inner logical volume number is set in a newly defined inner logical volume area in response to completion of the copying, and

    in the case where the capacity of said undefined inner logical volume area is insufficient, according to an instruction from said control utility, assignment of a logical volume number which is described in said logical volume number map and is seen from said computer and an inner logical volume number of said storage corresponding to the inner logical

volume number seen from the computer is changed to thereby enable a plurality of inner logical volume numbers of said storage corresponding to the logical volume seen from said computer to be assigned.

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9. The computer system according to claim 8, wherein said logical volume number map includes the logical volume number seen from said computer, the logical volume number in said storage, and logical

10 volume number combining information describing a combining relation between the logical volume number seen from said computer and the inner logical volume number of said storage,

according to an instruction from said control utility, with respect to an inner logical volume of the storage of which correspondence with the computer is undefined, said logic volume control means describes a new combining relation between the logical volume number seen from the computer and the inner logical 15 volume number in said storage into the logical volume number map, thereby changing the logical volume construction, and

20 the construction change of the logical volume assigned to said computer is recognized by said logical volume recognizing means.

25 10. The computer system according to claim 8, wherein the number of blocks indicative of a size of

5        said inner logical volume is described in said logical volume number map, and when a plurality of inner logical volumes are assigned, a cumulative total of the numbers of blocks of the inner logic volumes including the immediately preceding inner logic volume is used as the top address of each inner logical volume.

10        11.        The computer system according to claim 9, wherein the number of blocks indicative of a size of said inner logical volume is described in said logical volume number map, and when a plurality of inner logical volumes are assigned, a cumulative total of the numbers of blocks of the inner logic volumes including the immediately preceding inner logic volume is used as the top address of each inner logical volume.

15        12.        The computer system according to claim 8, wherein in said logical volume number map, when a new inner logical volume number is set in the newly defined inner logical volume area, an area corresponding to the logical volume number designated by said control utility is changed to an inner logical volume whose correspondence with said computer is not defined.

20        25        13.        The computer system according to claim 8, wherein said logical volume control means allows said computer to access said storage on both an area corresponding to a logical volume number designated by

said control utility and an inner logical volume area  
    newly defined.

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